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Assessing preschoolers' emergent literacy skills in English and Spanish with the Get Ready to Read! screening tool

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Abstract This study investigated the ability of the English and Spanish versions of the *Get Ready to Read!* Screener (E-GRTR and S-GRTR) administered at the beginning of the preschool year to predict the oral language and phonological and print processing skills of Spanish-speaking English-language learners (ELLs) and English-only speaking children (EO) at the end of the year. The results revealed that the E-GRTR predicted the EO and ELL children's English emergent literacy skills and the ELL children's Spanish emergent literacy skills, and the S-GRTR predicted the ELL children's English and Spanish emergent literacy skills. For both groups, the E-GRTR and the S-GRTR were better at predicting children's print knowledge in English and Spanish compared to the other emergent literacy measures. The findings suggest that both screeners can be used effectively to assess preschool children's emergent literacy skills.

Keywords *Get Ready to Read!* Screener- English & Spanish · E-GRTR · S-GRTR · Literacy skills · Early literacy · Preschoolers · English Language Learners

There is strong evidence to suggest that the problems children experience in learning to read during the elementary school years and beyond are related to the emergent literacy skills they bring with them from the preschool and kindergarten period (Lonigan, 2006; Lonigan et al., 2000; Shonkoff & Phillips, 2000; Wagner et al., 1994). In recent years, researchers (e.g., Lonigan, 2006; Lonigan et al., 1998; Scarborough, 1998) have isolated three fundamental skills in the preschool period that are predictive of children's reading ability at school-age: phonological awareness (the ability to detect and manipulate sounds in oral language independent of meaning; e.g., rhyming words and blending or deleting syllables or phonemes), print knowledge, and oral language (vocabulary and grammar). Young children who have more of these emergent literacy skills profit more from reading

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instruction, learn to read sooner, and read better than do children who have fewer of these skills (Whitehurst & Lonigan, 1998). Longitudinal studies have shown that assessments of these emergent literacy skills before formal reading instruction in kindergarten or first grade are predictive of children's reading ability one or more years later (Butler et al., 1985; Catts et al., 1999; de Jong & van der Leij, 2003; Lonigan et al., 2000; Schatschneider et al., 2004; Wagner et al., 1994). Recent investigations have also suggested that school-age non-disabled and disabled readers can be differentiated early in their preschool years by the variability in their emergent literacy skills as measured by oral language, phonological awareness, and letter knowledge (e.g., Scarborough, 1990).

Prior research has suggested that poor readers have a core phonological deficit as well as impairments in other reading-related skills (e.g., vocabulary) depending on how discrepant their reading level is from their general cognitive and academic functioning (Stanovich & Siegel, 1994). Thus, some poor readers exhibit low levels of phonological processing skills but have cognitive abilities that are consistent with age expectations (the condition typically referred to as dyslexia), whereas other poor readers have inadequate phonological processing skills as well as poor oral language or low general cognitive abilities, often referred to as garden-variety poor reading (Castles & Coltheart, 1993). For both types of poor readers, these requisite skills can be identified and assessed early during the prereading stage. Given the strong relation between early phonological awareness, as well as other skills like print knowledge, Justice et al. (2002) recommended that early screening protocols used by speech and language pathologists should include items for evaluating phonological awareness, letter-name knowledge, and letter-sound knowledge.

Studies of the effectiveness of early interventions also support the importance of these key skills for helping struggling readers and preventing reading disabilities. That is, interventions that provide systematic, explicit, and intense instruction in phonological awareness, print awareness/letter knowledge, and vocabulary produce the most gains for monolingual English-speaking children who are at high risk of reading difficulties and disabilities (e.g., Hatcher et al., 2004; Mathes et al., 2005; National Reading Panel Report, 2000; Whitehurst et al., 1994). In addition, research with preschoolers and slightly older children who have speech and language disorders showed that their phonological awareness abilities improved with direct training (Gillon, 2000; van Kleeck et al., 1998). However, regardless of how effective these interventions may be in addressing children's reading difficulties, it is important to be able to identify those children who are likely to develop a reading disability or who are well below average reading ability before they begin formal reading instruction.

Generally, most English-language-proficient children (i.e., non-English language learners) with learning disabilities are not identified or provided with special education until the second or third grade (Wagner et al., 2005). This is problematic for at least two reasons. First, as longitudinal studies have shown, individual differences in children's emergent literacy and reading skills tend to remain stable from kindergarten to second grade (Francis et al., 1996) and fourth grade (Wagner et al., 1997) and from first grade to fourth grade (Juel, 1988). Second, reading problems become increasingly difficult to overcome the longer they exist—often to the extent that children may "learn to be learning disabled" (Clay, 1987, p. 155).

Children whose first language is other than English pose an additional challenge to the identification of reading disabilities and intervention efforts. In the USA today, Spanish-speaking students who are English-language learners (ELL) constitute the largest bilingual subgroup and are the fastest growing subgroup in public schools (McCardle et al., 2005b). Unfortunately, ELL children tend to have lower academic achievement, poorer literacy outcomes, and higher grade repetition and school dropout rates than do their non-ELL peers (August & Hakuta, 1997). Data from the National Center for Education Statistics for reading in 2005 revealed that 56% of the Latino and 73% of ELL children in the fourth grade scored below the “basic” level, which indicates that a significant number of these children do not have even partial mastery of the skills needed for grade-level work (Perie et al., 2005).

Recent policy reports show that of the ELL children who are in special education in schools in the USA, 56% have learning disabilities, with reading difficulties as the basic problem, and 24% have speech-language impairments (USDOE & NICHD, 2003). At present, the procedures for identifying learning disabilities in ELL children and referring them to special education vary across states, within school districts, and by teachers themselves (USDOE & NICHD, 2003). Moreover, according to data compiled by the Office of English Language Acquisition (as cited in McCardle et al., 2005b), there has been an increase in the identification of ELL children with learning disabilities in fourth to sixth grade. This is about 2 to 3 years later than non-ELL children are generally identified. The fact that it has been difficult to determine whether ELL children experience difficulty in developing early English literacy skills due to second language acquisition issues or because they have learning disabilities has compounded the problem of identification.

Currently, there is little empirical research on ELL children’s early literacy development or on interventions for ELL children at risk of reading failure. However, some studies have shown that phonological awareness and reading skills are correlated in Spanish (Carrillo, 1994; Durgunoglu et al., 1993), and there seems to be a typical developmental sequence in phonological awareness across alphabetic languages, such as Spanish (see Ziegler & Goswami, 2005 for a review).

In a recent review of several predictive studies with ELL children, Klingner et al. (2006) concluded that factors that were associated with later reading ability in English or a second language (usually Spanish) generally included phonological awareness and print/letter knowledge. In a study of ELL children from kindergarten to first grade, phonological awareness, letter knowledge, and rapid automatic naming in both English and Spanish were significant predictors of first decoding in English (Manis et al., 2004). In a Canadian study of ELL children with different language backgrounds, Chiappe et al. (2002) found that children’s acquisition of basic literacy skills (i.e., letter knowledge and phonological awareness) developed in a similar manner regardless of their first language. Durgunoglu et al. (1993) reported that the best predictors of literacy development in both Spanish and English for native Spanish-speaking children were their phonological awareness and word recognition skills in Spanish. Finally, in interventions for first- and second-grade ELL children that included some form of phonological instruction, children made significant progress in later reading in their home language (e.g., Haager & Wíndmueller, 2001; Nag-Arulmani et al., 2003).

Wagner et al. (2005) suggested that ELL children should be assessed in both English and their home language to determine their instructional needs and to gain a more complete picture of their abilities. For example, if children are administered an emergent literacy assessment using words they do not understand, they are likely to be at a disadvantage compared to children who understand the words in the assessment. Thus, low scores on an assessment could reflect children’s language skills rather than their ability in the domain being assessed.

Ideally, screening ELL children’s emergent literacy skill development using comparable assessments in English and their home language could help teachers and other practitioners differentiate between children who are learning disabled from those who are struggling due to English language acquisition issues. More specifically, similar to what Wagner et al. (2005) proposed for older ELL children, if an ELL preschooler has fairly well-developed emergent literacy skills in their home language but not in English, one could surmise that the problems in English are associated with the amount and quality of his or her English pre-literacy instruction and vice versa for the home language. On the other hand, if the child has poor skills in both their home language and English despite instruction in either or both languages, then the possibility of a more pervasive learning disability should be investigated. In addition, teachers could use screeners to track children's progress in their emergent literacy skill development. Furthermore, in developing a research agenda to address learning disabilities in ELL children, McCardle et al. (2005a, b) proposed that screening tools to identify ELL children who are at risk for learning difficulties need to be developed or adapted.

Typically, children's early emergent literacy skills are assessed using published norm- or criterion-referenced measures such as the Test of Phonological Awareness-second edition (Torgesen & Bryant, 2004) or the Phonological Awareness Literacy Screening-Pre-K (Invernizzi et al., 2003). Kindergarten readiness tests typically include broad measures of cognitive and academic skills. Current studies have shown that although these assessments have varying degrees of success in predicting children's school achievement and reading performance (e.g., Havey et al., 2002; La Paro & Pianta, 2000; Morrison et al., 1997), data also suggest that measures that directly target key emergent literacy skills are more successful predictors of children's later reading abilities than are those that assess a broader range of cognitive or academic-related skills (e.g., Chew & Morris, 1989; Lonigan, 2006; Lonigan et al., 2007). Furthermore, many existing instruments are lengthy, time-consuming, expensive to purchase, and require fairly extensive training to administer. These factors complicate the accurate early identification of children who may be at risk, which decreases the likelihood of being able to refer them for further assessment or focused instruction in emergent literacy.

A more recent approach has been the use of "screeners" for the early detection of reading difficulties in young children. In conjunction with the National Center for Learning Disabilities (NCLD), Whitehurst and Lonigan (2001) developed the *Get Ready to Read!* screening tool in English (E-GRTR). The primary goal in developing the E-GRTR screener was to develop an instrument that could provide a brief and reliable assessment of preschoolers' status in acquiring fundamental emergent literacy skills and which also had strong concurrent relations to lengthier measures with established validity in predicting reading skills. The resulting E-GRTR contained 20 items that assess print knowledge, letter-name and sound knowledge, rhyming, initial sound matching, compound word blending, and knowledge of writing. Analyses of internal consistency for the E-GRTR revealed a coefficient alpha of 0.78 and a split-half reliability of 0.80. The E-GRTR was also correlated (r=0.69) with the Developing Skills Checklist (CTB/McGraw Hill, 1990; Whitehurst, 2003). Subsequent large-scale projects evaluating the growth in children's E-GRTR scores across the preschool year showed an average gain from 13.14 items to 16.14 items (i.e., 15% growth), with two thirds of children achieving scores of 16 out of 20 or better at the final administration (NCLD, Whitehurst 2003).

Molfese et al. (2004) assessed the concurrent validity of the E-GRTR by comparing it to measures of general cognitive ability (Differential Ability Scales; Elliott, 1990), expressive (Expressive Vocabulary Test; Williams, 1997), and receptive vocabulary (PPVT-III; Dunn & Dunn, 1997), rhyming (Phonological Abilities Test; Muter et al., 1997), blending (NEPSY; Kirkman et al., 1998), and environmental print with 152 3- and 4-year-olds enrolled in preschool programs for economically disadvantaged children. The results showed that the E-GRTR was significantly correlated with all measures except the blending task for the 4-year-olds and with all measures except environmental print for the 3-year-olds. More recently, Molfese et al. (2006) compared fall to spring gains in letter identification among 57 low-income 4-year-olds. Their results showed that children's gain in letter recognition (measured using a subscale of the Wide Range of Achievement Test; Wilkinson, 1993) over the preschool year was significantly associated with assessments of their phonological processing, rhyme detection, and environmental print, as well as the E-GRTR screener.

To meet the needs of Spanish-speaking 4-year-old children, NCLD developed a version of the E-GRTR screener in Spanish (S-GRTR; Lonigan, 2003). The objective was to provide near-parallel English and Spanish versions of the screener in terms of skill level taking into account differences between the two languages. The test development used a sample (N= 222) of Spanish-speaking children with English language skills that ranged from limited to conversationally competent. Analyses of the field testing showed that the 20-item measure was moderately correlated with children's scores on the Spanish language version of the Preschool Language Scale 4 (PLS-4 Spanish; Zimmerman et al., 2002) and a Spanish language version of the Preschool Comprehensive Test of Phonological and Print Processing (P-CTOPPP-S; Lonigan et al., 2002a), a diagnostic measure of children's emergent literacy that assesses skills in phonological sensitivity, phonological memory, and print domains. The S-GRTR had relatively high correlations of item sets with scores on the P-CTOPPP-S (range=0.31 to 0.68); the majority of the items were completed correctly by 30 to 70% of children (mean number of correct responses was 11.30, SD=3.96), and the overall alpha for internal consistency reliability was 0.76 (Lonigan, 2003).

To date, only two published studies (Molfese et al., 2004, 2006) have used the E-GRTR screener, and to our knowledge, there are no published studies using the Spanish version. Consistent with the rationale for the Molfese et al. (2004) study, if children's scores on the E-GRTR and S-GRTR can be linked to their performance on emergent literacy assessments in English and Spanish that predict later reading skill, then these two screeners may be useful in identifying preschoolers who are at risk of reading disabilities or who need additional help in their literacy skill development. Therefore, in the current study, we investigated whether the two screeners would be useful in predicting low-income English only (EO) and ELL children's emergent literacy skills within and across both languages over the preschool year. We focused on Head Start children because they are known to be at high risk for reading difficulties due to poverty and associated factors. More specifically, we addressed four research questions: (a) Does the E-GRTR predict ELL and EO children's English emergent literacy skills and ELL children's Spanish emergent literacy skills? (b) Does the S-GRTR predict the ELL children's English and Spanish emergent literacy skills? (c) Which of the two screeners better predicts the ELL children's emergent literacy skills in each language? and (d) Does the S-GRTR aid in the prediction of ELL children's English emergent literacy skills after accounting for the effects of the E-GRTR?

Method

Participants

The participants were 540 children aged 37 to 60 months (mean=50.62, SD=4.85) who were enrolled in a Head Start-State preschool program that serves several inner-city neighborhoods of Los Angeles, CA. All of the children were from low-income African-American or Latino families. Of these children, 50.6% (n=273; 156 boys, 117 girls) were

Spanish-speaking ELLs and 49.4% (n=267; 144 boys, 123 girls) were English-speaking (i.e., EO children). All children qualified for and were enrolled in the same Head Start classrooms and lived in the same inner-city neighborhoods regardless of ethnic background.

The Latino children were from homes where Spanish was the dominant language; 83% of the parents reported speaking only Spanish in their homes, whereas 17% reported speaking both languages in their homes. All of the Latino children were born in the USA, whereas only 16% of their parents were US-born. Most parents were born in Mexico (63%) or Central America (31%), and they immigrated to the USA from 1 to 45 years ago (mothers, 1–35 years; mean=17.99; SD=7.03; fathers, 1–45 years; mean= 18.81; SD=6.64).

Parents were informed about the project, and their written consent was obtained during meetings held at the preschool centers. The preschool staff and parents were told that we wanted to learn about children's readiness for school. Participation in the study was voluntary and was limited to children who were not receiving resource help for speech and language delays.

Measures

Get Ready to Read! screener—English The GRTR-English screener includes 20 items in which the child is shown four pictures and is asked to respond to a question by the examiner (e.g., which one is a "B"?). The items are intended to assess the domains of print knowledge (13 items covering print concepts, letter knowledge, and early writing) and phonological awareness (seven items). The overall alpha for internal consistency reliability for the norming sample was 0.78; however, in the current study, it was 0.63.

Get Ready to Read! screener—Spanish The GRTR-Spanish screener includes 20 items in which the child is shown four pictures and is asked to respond to a question by the examiner (e.g., *Encuentra la letra "R"*). The items are intended to assess the domains of print knowledge (13 items covering print concepts, letter knowledge, and early writing) and phonological awareness (seven items). The Spanish language items had similar content to the English version taking into account differences between the two languages. The overall alpha for internal consistency reliability for the norming sample was 0.76; however, in the current study, it was 0.56.

Oral language Children's oral language was assessed with the 68-item Expressive Communication subscale of the Preschool Language Scale 4 (PLS-4; Zimmerman et al., 1992) and the 65-item Expressive Communication subscale of the Preschool Language Scale 4 Spanish (PLS-4 Spanish; Zimmerman et al., 2002). In both versions of the measure, children are asked to respond to direct questions using pictures and objects (e.g., a child is shown a picture of gloves and asked in English: Why do we wear gloves?; Spanish: *¿Por qué nos llevamos guantes?*) For the ages tested, Cronbach's alphas reported in the test manuals ranged from 0.92 to 0.95 for the English version and from 0.86 to 0.90 for the Spanish version.

Phonological awareness and print knowledge skills Children's phonological awareness and print knowledge were measured using the blending, elision, and print knowledge subtests of the Preschool Comprehensive Test of Phonological and Print Processing (P-CTOPPP; Lonigan et al., 2002b), and P-CTOPPP-Spanish (Lonigan et al., 2002a). The P-CTOPPP is the development version of the Test of Preschool Early Literacy (Lonigan et al., 2007). The tasks are presented in groups of three items that increase in level of difficulty from word blending and elision, syllable blending and elision, to sub-syllable blending and elision. Children are asked to either point to a picture (multiple choice) or verbally generate the target word (free response). They are given two practice items and receive feedback on both practice items and the first three test items only.

The blending subtest consists of 21 items in English and 18 items in Spanish. In Spanish, nine are multiple choice (with pictures) and nine are free-response items (without pictures). In English, nine are multiple choice and 12 are free-response items. Children were asked to blend words, syllables, and phonemes to create real words (e.g., English: What word do these sounds make: Bas-ket?; Spanish: *¿Qué palabra forman estos sonidos: Balón-Cesto?*; English blending alpha=0.83; Spanish blending alpha=0.79).

The English and Spanish elision subtests each consist of nine multiple choice and nine free-response items where children are asked to remove phonemes, syllables, or half of a compound word and to determine the word that remained (e.g., English: Say candy. Now, say candy without "dee"; Spanish: *Di sandía. Ahora, di sandía sin san*; English elision alpha=0.81; Spanish elision alpha=0.61).

The English and Spanish 36-item print knowledge subtests consist of sets of four picture-based multiple-choice items measuring knowledge of print concepts (i.e., letter discrimination, letter-sound identification, and letter-name identification; e.g., English: These are pictures of a book. Which one shows the name of the book?; Spanish: *Éstos son dibujos de un libro. ¿En cuál puedes ver el título (nombre) del libro?*). The subtests also include ten free response letter-name identification tasks (English: What is the name of this letter?; Spanish: *¿Qué letra es esta?*) and four free-response letter-sound identification tasks (English: What sound/noise does this letter make?; Spanish: *¿Cómo suena esta letra/qué sonido esta letra?*; English print knowledge alpha=0.87; Spanish print knowledge alpha=0.78).

Procedures

Data were collected by a trained research team made up of graduate and undergraduate psychology students who were bilingual. In late October, after the preschool enrollment was finalized and children were familiar with the setting and the research assistants, all children were administered the E-GRTR, and the ELL children were also given the S-GRTR. At the end of the preschool year (i.e., May), all children were administered the P-CTOPPP and the PLS-4 in English, and the ELL children were also tested using the P-CTOPPP-S and the Spanish version of the PLS-4. All assessments were given in a quiet familiar area in the preschool. Administration of each screener took approximately 10 min. The testing of ELL children occurred on two different days, usually within the same week, and was counterbalanced by language. The ELL children received instruction regarding the administration of all assessments in both languages. If children responded in the alternate language, they were reminded of the language to use.

Across all assessments, children's responses were scored as correct=1 or incorrect=0. Credit was given only if the child produced the correct answer in the language being assessed. Within each skill area, tasks were summed to create composite scores for the E-GRTR and S-GRTR screeners and for the blending, elision, and print knowledge subtests of the P-CTOPPP in English and Spanish where relevant.

Results

Means, standard deviations, and ranges for all of the variables are shown in Table 1 for the EO children and ELL children. The ELL children were significantly older than the EO children, $t(535)=-4.35$, $p<0.001$, but they scored significantly lower on all of the English measures (all $t>4.23$, all $p<0.001$). For the ELL children, the E-GRTR and the S-GRTR were moderately correlated, $r(264)=0.49$, $p<0.001$, and the English and Spanish versions of print knowledge showed a strong association, $r(219)=0.77$, $p<0.001$. Additionally, the English and Spanish versions of the PLS, $r(236)=0.37$, $p<0.001$, elision, $r(219)=0.38$, $p<0.001$, and blending, $r(219)=0.37$, $p<0.001$, were significantly correlated. None of the observed variables showed marked departures from normality in either group based on visual inspections of the histograms. There were a small number of multivariate outliers which were identified as standardized residuals with absolute values greater than 3.0. However, exploratory analyses without these outliers revealed that they did not have a substantial impact on the results, and, consequently, they were retained in the analyses.

Multiple-group analyses using E-GRTR to predict the English emergent literacy skills

To address our research questions, we specified path models in Amos 6.0 (Arbuckle, 2005) using raw scores for all of the measures and maximum likelihood (ML) estimation. ML estimation has been shown to be robust to violations of normality, and it allowed us to analyze data from all 540 children although 8.6% of the observations were missing (Bentler and Chou 1987; McArdle 1994). We used the chi-square (χ^2) statistic to assess the significance of individual paths and to compare paths across the groups (Loehlin 2004). A change in model fit (i.e., $\Delta\chi^2$) results from constraining paths to be equal to zero or to be equal across the groups. A larger $\Delta\chi^2$ is indicative of significant differences in models when paths are constrained to zero or greater differences across the groups.

Table 1 Means, standard deviations, and ranges for all variables

	n	Mean	SD	Range
English-only children				
Age (in months)	264	49.71	5.30	37–59
E-GRTR	267	7.78	3.59	0–20
English PLS-4	236	52.80	7.28	25–67
English print knowledge	238	18.21	9.22	3–36
English elision	238	8.35	3.62	1–18
English blending	238	13.16	4.18	1–18
English-language learners				
Age (in months)	273	51.50	4.20	43–60
E-GRTR	273	6.59	2.95	0–17
S-GRTR	264	8.01	3.11	1–16
English PLS-4	244	45.45	9.59	21–66
English print knowledge	238	13.80	8.09	1–35
English elision	238	6.29	2.91	0–17
English blending	238	10.67	3.87	0–18
Spanish PLS-4	242	49.45	7.60	16–65
Spanish print knowledge	230	10.92	5.55	2–32
Spanish elision	230	5.81	2.19	0–17
Spanish blending	230	11.05	3.66	1–18

The path model used in the analyses with the GRTR screeners predicting the four emergent literacy skills is shown in Fig. 1. The path model is analogous to a multiple regression analysis, with the GRTR screeners and age predicting multiple outcome variables that are correlated (i.e., the disturbances for the outcome variables were allowed to covary). The four outcome measures were treated as manifest variables because we were interested in how accurately the screener predicted each of them. The paths from the GRTR screeners are partial regression coefficients after accounting for the effects of age, which was conceptualized as a control variable. All of the path models used in the analyses were variants of the model shown in Fig. 1.

To examine whether the E-GRTR predicted EO children and ELL children's English emergent literacy skills, a multiple-group path model was used. A multiple-group path model allows for the calculation of parameter estimates for two or more groups simultaneously when the groups have identical models. Constraining the regression weights to be equal across the groups is tantamount to testing the significance of interaction terms between a grouping variable and the E-GRTR. Paths were specified from the E-GRTR to the English versions of PLS-4, print knowledge, blending, and elision. A saturated model (i.e., with zero *df*) was tested with all of the parameters estimated freely for both groups. Standardized and unstandardized path coefficients predicting the four outcome variables for both groups as well as partial correlations, controlling for age, between the four outcome variables and the E-GRTR are shown in Table 2. Both the standardized path coefficients and the partial correlations show the relative relations between the E-GRTR and the emergent literacy outcomes. The unstandardized path coefficients show the sample-specific relations between the E-GRTR and the emergent literacy outcomes. For example, the unstandardized path coefficient of 0.42 for the EO children's PLS-4 scores indicates that for every one item increase on the E-GRTR, their scores on the PLS-4 increased by 0.42 items. To test the significance of the paths from the E-GRTR to the English outcome variables, each path was individually constrained to be equal to zero. The $\Delta\chi^2$ for each

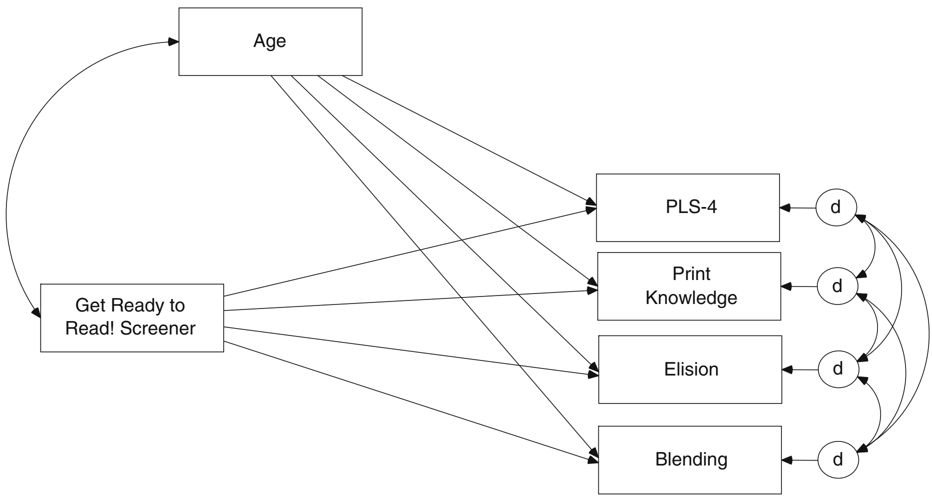

Fig. 1 Path model for the Get Ready to Read! screeners and age predicting PLS-4, print knowledge, elision, and blending

Table 2 Summary of the path coefficients predicting the English emergent literacy variables from the English Get Ready to Read! screener after accounting for the effects of age

Variable	*B*	SE *B*	β	$\Delta\chi^2$	Pr
English PLS-4					
English-only children	0.42*	0.12	0.21	11.57	0.24**
English-language learners	1.02**	0.19	0.32	26.76	0.33**
English print knowledge					
English-only children	1.48**	0.13	0.58	100.17	0.60**
English-language learners	1.30**	0.16	0.47	57.88	0.46**
English elision					
English-only children	0.33**	0.06	0.32	25.94	0.33**
English-language learners	0.30**	0.06	0.30	21.45	0.31**
English blending					
English-only children	0.31**	0.09	0.31	24.10	0.33**
English-language learners	0.27*	0.08	0.20	10.10	0.21*

$\Delta\chi^2$ represents the decrement in model fit resulting from constraining each parameter to be equal to zero. pr is the partial correlation between the screener and the outcome variables after controlling for age.

*p<0.01

**p<0.001

constraint revealed that the E-GRTR was a significant predictor of the four outcome variables in English for both groups.

To investigate which of the English outcome measures was best predicted by the E-GRTR, Steiger's (1980) test for dependent correlations was used to compare the dependent partial correlations between the E-GRTR and the outcome variables after partialing age. Only the children who had complete data (EO n=233; ELL n=208) were used to calculate the partial correlations for this and all subsequent analyses with the partial correlations. For the EO children, the partial correlation between the E-GRTR and print knowledge was larger than the partial correlation between the E-GRTR and blending, $t(230)=4.57$, $p<0.001$, the partial correlation between the E-GRTR and elision, $t(230)=4.71$, $p<0.001$, and the partial correlation between the E-GRTR and PLS-4, $t(230)=5.93$, $p<0.001$. None of the other comparisons for the EO children reached significance.

For the ELL children, the partial correlation between the E-GRTR and print knowledge was stronger than the partial correlation between the E-GRTR and blending, $t(205)=3.44$, $p<0.001$, the partial correlation between the E-GRTR and elision, $t(205)=2.13$, $p<0.05$, and the partial correlation between the E-GRTR and PLS-4, $t(205)=1.96$, $p<0.05$. None of the other comparisons for the ELL children reached significance.

To test whether the E-GRTR predicted the English outcomes for the EO children and ELL children equally well, a model with the paths from the E-GRTR to the outcome variables constrained to be equal across the groups was compared to a saturated model with no constraints. The paths from age to the outcome variables were not constrained to be equal across groups. The constraints significantly decremented model fit ($\Delta\chi^2$=13.88, 4 *df*, p<0.01). Individually releasing the constraints from the model with the four constraints revealed that only the path leading to PLS-4 was not invariant across the groups ($\Delta\chi^2$= 13.12, 1 *df*, p<0.001). An inspection of the unstandardized partial regression coefficients revealed that the E-GRTR was a better predictor of the PLS-4 for the ELL children (B= 1.02) compared to the EO children (B=0.42). Individually releasing the constraints on the paths leading to print knowledge, blending, and elision did not significantly improve model fit ($\Delta\chi^2$ ranged from 1.18 to 2.29 with 1 *df*), which indicated that the E-GRTR predicted these variables with equal accuracy for both the EO children and ELL children.

The E-GRTR predicting the Spanish emergent literacy skills for the ELL children

A path model was specified with the ELL children to examine the effectiveness of the E-GRTR to predict the Spanish versions of the PLS-4, print knowledge, blending, and elision. First, a saturated model was tested with all of the parameters estimated freely. The unstandardized and standardized path coefficients as well as partial correlations, controlling for age, between the four Spanish outcome variables and the E-GRTR are shown in Table 3. To test the significance of each path from the E-GRTR to the four outcome variables, they were individually constrained to zero. The $\Delta\chi^2$ for each constraint revealed that the E-GRTR was a significant predictor of the Spanish versions of the PLS-4, print knowledge, and blending, but it was not a significant predictor of the Spanish version of elision. The partial correlation between the E-GRTR and print knowledge was larger than the partial correlation between the E-GRTR and blending, $t(205)=2.75$, $p<0.01$, the partial correlation between the E-GRTR and elision, $t(205)=3.22$, $p<0.01$, and the partial correlation between the E-GRTR and PLS-4, $t(205)=3.07$, $p<0.01$. None of the other comparisons reached significance.

The S-GRTR predicting the English emergent literacy skills for the ELL children

A path model was specified with the S-GRTR and age predicting the English versions of the PLS-4, print knowledge, blending, and elision for the ELL children. The unstandardized and standardized path coefficients as well as partial correlations, controlling for age, between the English outcome variables and the S-GRTR are shown in Table 4. To test the significance of each parameter, each path from the S-GRTR to the four outcome variables was individually constrained to zero. The $\Delta\chi^2$ for each constraint revealed that the S-GRTR was a significant predictor of the English versions of the PLS-4, print knowledge, blending, and elision. There were no significant differences among the partial correlations between the S-GRTR and any pair of English outcome variables. In addition, we investigated whether the E-GRTR or the S-GRTR was a more accurate predictor of each English outcome variable. There were no significant differences between the partial correlations between the E-GRTR and the English outcome variables (see Table 2) and the

Table 3 Summary of the path coefficients predicting the Spanish emergent literacy variables from the English Get Ready to Read! screener after accounting for the effects of age

Variable	*B*	SE *B*	β	$\Delta\chi^2$	pr
Spanish PLS-4	0.42**	0.16	0.16	6.73	0.19**
Spanish print knowledge	0.75***	0.11	0.40	38.86	0.39***
Spanish elision	0.07	0.05	0.10	2.16	0.14*
Spanish blending	0.23**	0.08	0.18	7.50	0.18*

$\Delta\chi^2$ represents the decrement in model fit resulting from constraining each parameter to be equal to zero. pr is the partial correlation between the screener and the outcome variables after controlling for age.

*$p<0.05$

**$p<0.01$

***$p<0.001$

Table 4 Summary of the path coefficients predicting the English emergent literacy variables from the Spanish Get Ready to Read! screener after accounting for the effects of age

Variable	B	SE B	β	$\Delta\chi^2$	pr
English PLS-4	0.74**	0.18	0.24	15.71	0.26**
English print knowledge	0.87**	0.16	0.34	28.57	0.35**
English elision	0.19*	0.06	0.21	10.05	0.22*
English blending	0.31**	0.08	0.25	15.55	0.27**

$\Delta\chi^2$ represents the decrement in model fit resulting from constraining each parameter to be equal to zero. pr is the partial correlation between the screener and the outcome variables after controlling for age.

*$p<0.01$

**$p<0.001$

partial correlations between the S-GRTR and the same outcome variables (see Table 4). To further explore which screener was a stronger predictor of each of the English outcome variables, the paths in the model with the S-GRTR as a predictor were constrained to the partial regression coefficients that resulted from the analyses with the E-GRTR as a predictor of the English outcomes for the ELL children (see Table 2). The constraint on the path leading to print knowledge significantly decremented model fit ($\Delta\chi^2$=7.17, 1 *df*, $p<$ 0.01), which indicated that in comparison to the S-GRTR, the E-GRTR was a better predictor of English print knowledge. None of the other constraints significantly decremented model fit.

The S-GRTR predicting the Spanish emergent literacy skills for the ELL children

We assessed the ability of the S-GRTR to predict the Spanish versions of the PLS-4, print knowledge, blending, and elision for the ELL children. The path model was specified in the same manner as the prior path models, but the S-GRTR predicted the Spanish outcome variables. The unstandardized and standardized path coefficients are shown in Table 5 along with the partial correlations, controlling for age, between the S-GRTR and the four outcome variables. Each path from the S-GRTR to the four outcome variables was individually constrained to zero to test their significance. The $\Delta\chi^2$ for each constraint revealed that the S-GRTR was a significant predictor of the Spanish versions of PLS-4, print knowledge, blending, and elision. There were no significant differences between the partial correlations between the S-GRTR and any pair of outcome variables. We also compared the ability of the E-GRTR and the S-GRTR to individually predict each of the Spanish outcome variables. Only the partial correlation between the S-GRTR and blending was larger than

Table 5 Summary of the path coefficients predicting the Spanish preliteracy variables from the Spanish Get Ready to Read! screener after accounting for the effects of age

Variable	B	SE B	β	$\Delta\chi^2$	pr
Spanish PLS-4	0.68*	0.15	0.28	20.54	0.30*
Spanish print knowledge	0.71*	0.11	0.39	39.94	0.40*
Spanish elision	0.16*	0.05	0.23	11.25	0.26*
Spanish blending	0.38*	0.08	0.32	24.86	0.32*

$\Delta\chi^2$ represents the decrement in model fit resulting from constraining each parameter to be equal to zero. pr is the partial correlation between the screener and the outcome variables after controlling for age.

*$p<0.001$

the partial correlation between the E-GRTR and blending, $t(205)=-1.97$, $p<0.05$. The paths in the model with the S-GRTR as a predictor were constrained to the partial regression coefficients that resulted from the analyses with the E-GRTR as a predictor of the Spanish outcomes for the ELL children (see Table 3). The constraint on the path to blending significantly decremented model fit ($\Delta\chi^2=4.11$, 1 *df*, $p<0.05$), which indicated that the S-GRTR was a better predictor of blending than the E-GRTR. None of the other constraints significantly decremented model fit.

The E-GRTR and the S-GRTR predicting the English emergent literacy skills for the ELL children

Our final analyses tested whether the S-GRTR aided in the prediction of the English outcome variables after accounting for the effects of the E-GRTR and the children's age. The model included the E-GRTR and the S-GRTR as predictors of the English outcome variables. Initially, a saturated model was tested with all parameters estimated freely. Next, the paths from the S-GRTR to the four outcome variables were constrained to zero. The four constraints significantly decremented model fit ($\Delta\chi^2=10.33$, 4 *df*, $p<0.05$). Individually releasing the constraints from the constrained model indicated that the S-GRTR aided in the prediction of blending ($\Delta\chi^2=3.97$, 1 *df*, $p<0.05$), but not the PLS-4 ($\Delta\chi^2=0.00$, 1 *df*, *ns*), print knowledge ($\Delta\chi^2=3.09$, 1 *df*, *ns*), or elision ($\Delta\chi^2=0.02$, 1 *df*, *ns*). The standardized path coefficient from the S-GRTR to blending was small ($\beta=0.12$).

Discussion

With a large sample of Spanish-speaking ELL and EO children selected from Head Start centers, the current study explored the effectiveness of the E-GRTR in predicting EO children's emergent literacy skills and the E-GRTR and the S-GRTR in predicting ELL children's emergent literacy skills within and across both languages over the course of the preschool year. These results indicate that the E-GRTR administered at the start of the preschool year accurately predicted the oral language and early literacy skills in English of both ELL and EO children. Findings for the ELL children also revealed that the S-GRTR accurately predicted their emergent literacy skills in both English and Spanish. Generally, the within language predictions (e.g., S-GRTR to Spanish language emergent literacy skills) were stronger than the between language predictions (e.g., S-GRTR to English-language emergent literacy skills).

Overall, the results of this study indicated that brief screening measures, like the GRTR, provide valid information about important language and emergent literacy skills across the preschool year. These findings replicate those of Molfese et al. (2004) and extend them to include a substantially larger, more diverse, and more at-risk sample of preschool children, including ELL children. The results support the early use of these screening measures to identify the children most at risk of later reading difficulties regardless of whether children are ELL or EO. Such screening may be used to guide additional in-depth assessment to specify more clearly children's areas of strengths and weakness in key skill domains, to guide selection of appropriate and effective early intervention, or both.

For the ELL children in this study, the S-GRTR and the E-GRTR administered at the start of the preschool year provided statistically equivalent prediction of PLS, print knowledge, blending, and elision outcomes administered at the end of the preschool year.

These findings are consistent with the results of other studies on the assessment of ELL children. For instance, several studies have found significant and positive associations between the same skills measured in Spanish and English (e.g., Comeau et al., 1999; Lindsey et al., 2003); however, Lindsey et al. (2003) found that associations within language were stronger than associations across languages. Similar to the findings of this study, Manis et al. (2004) reported that the effects of Spanish prereading skills measured in kindergarten were reduced to non-significance after the inclusion of first grade English prereading skills when predicting second grade decoding abilities in English.

Given the recommendations of Wagner et al. (2005), it is likely that using measures in both English and Spanish provides a better assessment of whether an ELL child would be at risk for later reading difficulties depending on their existing skill levels in both languages and at what point in development the children are being assessed. For the ELL children in this study, the S-GRTR only added to the prediction of scores on the blending measure above what was predicted by the E-GRTR. This result indicates that both the E-GRTR and the S-GRTR provide equal and overlapping information concerning the majority of emergent literacy outcomes for ELL children as a group. Consistent with the recommendation of Wagner et al. (2005), however, at the individual children level, it is possible that use of only one of the screening measures would falsely identify a child as have a significant risk for later reading problems.

With regard to the current sample, it is also possible that because there has been a recent de-emphasis on bilingual education in the State of California and most pre-K programs for ELL children are predominantly English-language environments, the Spanish-speaking preschoolers developed these emergent literacy skills in English rather than in Spanish. Future studies on cross-language skill transfer in preschoolers could address this question.

Overall, the findings of the current study show that the short 20-item E-GRTR and S-GRTR screeners were significantly associated with the more lengthy measures of children's emergent literacy skills. Given that the screeners contained only a few items of each of the emergent literacy skill areas, it is noteworthy that both were predictive of these longer instruments. At the same time, it is important to note that screeners provide limited information on a child's progress and they are not intended to replace lengthier measures. However, screeners can be effective in providing teachers with the means to carry out a quick assessment of children's current skill development, to track children's overall progress on individual skill sets, and more importantly, to identify which children need additional evaluation, more intensive assessment, and comprehensive intervention activities. Furthermore, the availability of a measure in the Spanish language may help teachers feel more confident in assessing children's skill levels and being able to compare them in English and Spanish.

The results of the current study should be viewed with some caveats. First, we did not refer to the Spanish-speaking ELL children as bilingual (see Bialystok, 2001 for a review of the term) because much of the sample did not display adequate levels of English proficiency to be considered bilingual. Although our sample contained a subgroup of ELL children that would fit many of the definitions of bilingual, the group was too small to analyze separately, and we did not have additional language measures on the children to ensure that they were truly bilingual.

Second, the alpha levels for both screeners were relatively low in the current sample. Although a longer scale may have increased the reliability of the measures, the overriding goal was to use a short assessment of children's emerging literacy skills. Although this low reliability could result in less than optimal prediction, the issue is whether the two screeners had equal or roughly equal reliability. This is important in the sense that we were contrasting our predictions from one measure to another. If one of those measures had substantially lower reliability, it would also have had lower correlations with the criterion measures not because the construct was less related to the criterion measure but because of the lower reliability. In the case here, this is not operating. That is, the results showed there were relatively high and equal correlations of the E-GRTR with English outcomes and the S-GRTR and Spanish outcomes. It is also noteworthy that these samples of children had lower average scores and a more restricted range on these measures than the samples used in the development of the measures. This restriction in range likely produced the lower reliability in the current samples than in the development samples.

ELL children are a rapidly growing population in educational environments in the USA. Existing data indicate that many of these children are at substantial risk of early academic problems. At present, there are only limited data on the early identification and intervention for these children that may result in a reduction of risk for early academic difficulties and the resultant negative sequelae. This study provides evidence that early screening measures can be used to identify those preschool children who are most at risk regardless of whether they are ELL or EO. Although this is only the first step in helping these children succeed in school and reducing the risk of learning disability classification, the ability to accurately identify children in need of early intervention is an important component of the process. Of course, the identification of appropriate and effective preschool interventions in the domains of oral language, phonological awareness, and print knowledge also will be required. At present, there is evidence for some early language and literacy interventions for preschoolers (e.g., Byrne & Fielding-Barnsley, 1995; Whitehurst et al., 1999; see Justice & Pullen, 2003 for a review) and kindergartners (e.g., Blachman et al., 1999). Moreover, a recent intervention that used a curriculum which specifically targeted these skills among high risk EO and Spanish-speaking ELL preschool children showed that there was an equal impact for both groups in their emergent literacy skill development (Lonigan et al., 2007). Given the fact that the ELL children in this sample—who presumably had many of the same risk factors associated with low-income as the EO children—scored substantially lower than the EO children, it is likely that ELL children who are at risk of academic difficulties will need more or more intensive early intervention.

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